

Claims:

1. Method in computer-controlled confocal microscopy, for producing three-dimensional surface images of internal surfaces of cylinders in engine blocks, by using a confocal microscope having a microscope body, a tube attached to the latter and having a lens, which is preceded by a deflection optical system (2) having a horizontal translator (3).
2. Device for implementing the method according to claim 1, having a deflection optical system (2) located ahead of the lens (1).
3. Device according to claim 2, characterized in that the deflection optical system (2) consists of a reflection prism.
4. Device according to claim 2, characterized in that the deflection optical system (2) consists of a surface mirror.
5. Device according to one of claims 2 to 4, characterized in that the deflection optical system (2) deflects the beam by less than 90 degrees.

6. Device according to one of claims 2 to 5, characterized in that the lens (1) is a standard lens having an equalization length of 45 mm.
7. Device according to one of claims 2 to 5, characterized in that the lens (1) possesses an equalization length that is less than 45 mm.
8. Device according to one of claims 2 to 7, characterized in that the lens (1) can be moved by means of a piezo setting element (3).
9. Device according to one of claims 2 to 7, characterized in that the lens (1) can be moved by means of a stepper motor.
10. Device according to one of claims 2 to 9, having a device for attaching and adjusting the computer-controlled confocal microscope to be moved into cylinders in engine blocks, to measure the internal surfaces of the cylinders.

11. Device according to claim 10, characterized in that the attachment device possesses a clamping connection or screwed connection to the cylinder.
12. Device according to one of claims 10 to 11, characterized in that the microscope can be moved into the cylinder by means of a linear guide (13).
13. Device according to one of claims 10 to 12, characterized in that the microscope is adjustable and can be fixed in place with regard to the insertion depth, by means of the linear guide (13).
14. Device according to one of claims 10 to 13, characterized in that the attachment device or the adjustment device allows a rotation about the cylinder axis.
15. Device according to one of claims 10 to 14, characterized in that the attachment allows an adjustment of the distance between the lens and the internal surface of the cylinder, in other words focusing.